

Transportation logistics services

For over 50 years, Orano TN has provided the nuclear industry with transportation logistics services and packaging to support the entire nuclear fuel cycle.

With over 160 employees working from four main offices in France, Japan, China and the U.S., Orano TN annually oversees 5,000 shipments of radioactive materials including uranium concentrates, uranium hexafluoride (UF₆), fresh fuel assemblies, low-level waste and spent nuclear fuel. Orano TN is experienced with all modes of transportation and routinely ships radioactive and nuclear materials between enrichment plants, commercial and research reactor facilities, and waste disposal sites.

Orano TN's logistics solutions ensure the safe and reliable transportation of radioactive and nuclear

materials by offering the following capabilities for turnkey services for our clients.

- Coordination and implementation of domestic and international multi-modal transports
- Onsite technical assistance and operations support with package handling and loading
- Licensing, shipment validations and permits in all countries
- Transport witnessing, escorting and tracking
- Import and export clearance
- Marking, labeling, placarding and completion of shipping documentation
- Package selection
- In-house engineering, design and licensing resources
- Fleet of over 2,200 Type AF and Type B transport packages



The MP197HB cask traveling by rail

Mining industry

Orano TN has years of successful uranium concentrates shipping due to its onsite presence in Africa and Canada and the establishment of efficient shipping routes from mining regions in Canada, Africa, Kazakhstan and Australia. Orano TN's mining transportation logistics services is all inclusive, from engineering and manufacturing of client specific transport packages, as well to providing ISO containers.



Loaded TN-RAM cask being prepared for transport to disposal site

Conversion and enrichment

To support conversion and enrichment facilities, Orano TN provides the following containers and transportation logistics:

- Natural and depleted UF₆ in 48Y cylinders
- Enriched UF₆ in 30B cylinders loaded in UX-30 or COG-OP-30B overpacks
- Reprocessed UF₆ in 30B cylinders loaded in COG-OP-30B overpacks
- UF₆ samples
- 30B and 48Y cylinders with heels
- Cleaned and washed 30B cylinders
- Thermal blankets

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Orano TN's goal is to provide cost effective volume reduction, transportation and waste disposition services following ALARA principles.

Fuel fabricators

Along with logistics, Orano TN has experience using the following containers:

- **For enriched and depleted UO₂ powder, pellets and scraps:** OP-TU, ANF-50, ANF-250, TNF-XI, BUD and BW-2901 containers
- **For fresh BWR, PWR, EPR and MOX fuel assemblies:** MAP-12/13, TN-B1, SP series, FCC3, FCC4, ANF-10, ANF-18, 51032-2 or MX-6 containers
- **For contaminated fresh fuel assemblies:** SP series

Research reactors and laboratories

To support research reactors and laboratories Orano TN provides the following containers and transportation logistics:

- **Fresh:** (with low and high enriched uranium): TN-BGC1
- **Spent fuel assemblies:** TN-MTR and TN-LC
- **Sources, and medical isotopes:** TN-106 and TN-Lab

Low-level radioactive waste

Orano TN provides specialty shielded road and rail transport casks for highly irradiated and activated reactor components, including transportation logistics.

The two main casks are the TN-RAM, designed to transport control rod blades and other segmented reactor components, and the MP197HP, designed to transport larger items such as whole control rod blades and reactor components associated with decommissioning projects.

Orano TN's services and expertise includes the equipment and trained personnel to segment, compact, and package reactor components for transport to a disposal facility.

